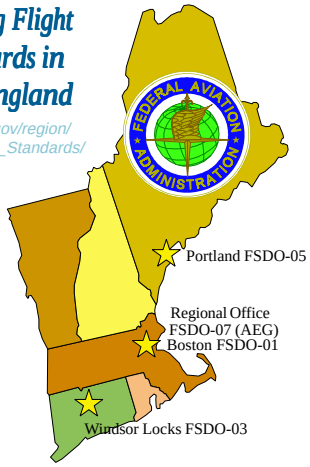
Airwaves

News from the FAA New England Flight Standards Region — Summer, 2000 — No. 38

Serving Flight Standards in New England

www.faa.gov/region/ane/Flight_Standards/



In This Issue

Click on index title to go directly to article

Internet Sites for

Airwaves

www.airsafety.org/Safety_Seminars/Windsor-Locks_FSDO/windsor-locks_fsdo.html

or

www.faa.gov/region/ane/Flight_Standards/newsltr/news.htm

Special Flight Permits

by Dale P. Johnson, Aviation Safety Inspector, NE-FSDO-03

It's 4:00 p.m. Friday afternoon at the FSDO office. The phone is ringing off the hook with people looking for ferry permits to get their airplanes from point A to point B. The request usually goes like this: "I need a ferry permit to get my airplane from here to there". Response: "Why do you need the ferry permit?". Reply: "Oh, my airplane just ran out of its annual inspection". Hopefully, this article will provide a clear understanding of the proper procedure and process of obtaining a Special Flight Permit otherwise known as a ferry permit.

Federal Aviation Regulation (FAR) Section 21.197 provides the regulatory requirement in which the Federal Aviation Administration *may* issue a Special Flight Permit. FAR Part 21.197 states that a special flight permit may be issued for an aircraft that may not currently meet applicable airworthiness requirements, but is capable of safe flight, for the following purposes:

1. Flying the aircraft to a base where repairs, alterations, or maintenance are to be performed, or to a point of storage.
2. Delivering or exporting the aircraft.
3. Production flight testing new production aircraft.
4. Evacuating aircraft from areas of impending danger.
5. Conducting customer demonstration flights in new production aircraft that have satisfactorily completed production flight test.

FAA Order 8130.2D provides guidance for the inspector or designee in the process of issuing a Special Flight Permit. Yes, a Designated Airworthiness Representative (DAR) may also issue a Special Flight Permit, with one exception - the designee has to inspect the aircraft and make the record entry.

Basically there are two procedures for obtaining a Special Flight Permit. First, the applicant, who could be the owner, or the mechanic acting as the owner's agent, will usually call the FSDO seeking the permit. Questions are asked by the airworthiness inspector about the reasons for the permit. Once all the information is obtained by the inspector

Continued on page 2

Continued from page 1

including, the aircraft registration, nature of repairs needed, location of the aircraft, and where the aircraft is being flown, the permit, along with operating limitations, may be issued via fax.

Second, the applicant may walk into the office seeking a permit. In this case, the applicant will be asked to complete an application for the Special Flight Permit. Once the inspector has reviewed the application and is satisfied that all requirements are met, the Special Flight Permit, and limitations, may be issued.

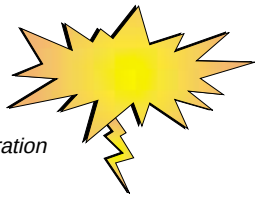
To be eligible for the permit, the aircraft must be located in the geographic boundaries of the FSDO in which the permit is being sought, otherwise the applicant will have to apply to the appropriate FSDO.

The limitations issued with the Special Flight Permit are to protect the public as well as the flight crew. Depending upon the aircraft and its condition, limitations are usually listed with 10 to 16 items of limitations. Some of the more basic ones are: the aircraft is to be flown day VFR only; only essential flight crew must be on board with no passengers; and a statement that a certificated mechanic must inspect the aircraft for the flight intended and make a log book entry stating such.

The FAA Inspector may inspect the aircraft prior to issue of a Special Flight Permit. However, the inspector must inspect the aircraft, if it has been involved in an accident or has received any damage.

If you have any questions regarding ferry permits please contact your local FSDO office. ✈

Electrostatic Discharge Sensitive Devices



By Clarence Johnson, Director of Maintenance, Shuttle America Corporation

Many electronic line replacement units (LRU's) contain micro-circuits and other sensitive devices which can be damaged internally by electrostatic discharge. These units are identified as being Electrostatic Discharge Sensitive (ESDS). Decals are installed on ESDS LRU's to indicate that special handling is required. Personnel who remove, install, and transport ESDS LRU's should have an understanding of static electricity including its generation and the protection from static discharges.

Electrostatic charges are generated and stored in a variety of ways. Human bodies, hair, clothing, floors, equipment racks, and equipment units may be electrostatically charged. An electrostatic discharge is a transfer of electrostatic energy between substances of different electrical potentials. Discharges from nylon clothing or human hair onto polyethylene or steel are capable of damaging unprotected ESDS components. Damage to internal components of an ESDS LRU can be a catastrophic failure caused by a single static discharge. System characteristics changes and/or performance degradation can be caused by multiple static discharges over a long period of time. Another mode of failure does not require contact to the LRU by a static charged person or object. Simple exposure of the LRU to the electrical field surrounding a charged object can damage or degrade the LRU.

Prevention

Prevention is the area where you can make the biggest difference. Proper use and implementation of ESD control materials are not the only weapons you have in fighting the ESD battle, there are a number of common sense rules you should follow. Simple rules that do not require additional materials but are extremely effective in preventive static damage are:

1. Always keep your work area clean and clear of unnecessary materials, especially common plastic.

2. When handling electronic devices, hold the components by the plastic edges. Avoid touching the metal leads.

3. When passing loaded boards or components between individuals, both individuals must be grounded to the same ground point or potential.

4. Test your ground devices daily and make sure they have not become loose or intermittent.

5. Avoid bringing components in contact with your clothing, hair, or other insulative materials.

6. Never enter an ESD sensitive area without taking the proper precautions.

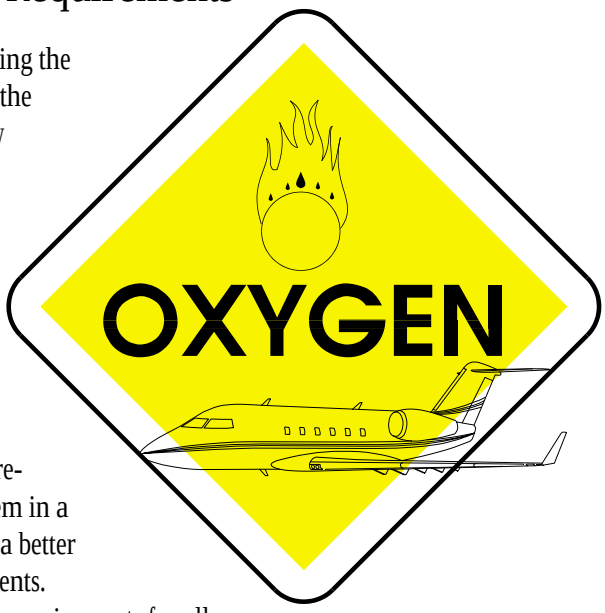
7. Know when you are working with possible ESD sensitive devices.

8. When working with ESD sensitive devices make sure you: ***Ground - Isolate - Neutralize.***

✈

Surface Safety:
Everyone's Responsibility
www.faa.gov/ats/ato/ato102

Part 91/135 Oxygen Requirements



A recent aircraft accident during the past year which resulted in the death of the two flight crew and 4 passengers relating to possible oxygen deprivation, drew some attention to the oxygen (O2) requirements for Part 135 operations. Although the probable cause of the accident has not yet been determined, we decided to dissect some of regulatory requirements and attempt to present them in a manner that might lend itself to a better understanding of these requirements.

Section 91.211 contains the O2 requirements for all flights under Part 91, and Sections 135.89 and 135.157 apply to Part 135 flights. As you would expect, the requirements for Part 135 are more stringent due the increased emphasis on safety. The adjacent chart gives a brief overview of the differences between the regulatory requirements of Part 91 and 135 along with the regulatory reference. As far as the FAA is concerned, the responsibility rests with the operator or air carrier to carry sufficient oxygen and oxygen amounts and, for pressurized aircraft, should be calculated based on the "assumption that a cabin pressurization failure will occur at that altitude or point of flight which is most critical from the standpoint of oxygen need" [FAA Legal Interpretation, 1991).

The O2 requirements under Part 121 are fairly complex and would require significantly more space for discussion than this newsletter could provide at this time. If you have any questions on these requirements, please contact your local FSDO or assigned principal inspectors. ✈

Airwaves is published quarterly by the Federal Aviation Administration, Windsor Locks Flight Standards District Office (NE-FSDO-03), Building 85-214, Bradley Int'l Airport, Windsor Locks, CT 06096-1009. Phone 860 654-1000, Fax 860 654-1009. Please direct your comments or questions to Jim Gebryel at 860 654-1010 or via electronic mail (e-mail) at *james.gebryel@faa.gov*. You can call, write, fax, or use e-mail to add your name to our mailing list. An electronic copy of *Airwaves* may be downloaded from: *www.faa.gov/region/ane/Flight_Standards/newsltr/news.htm.*

Requirement	Part 91	Part 135
O2 required to be *used* by flightcrew:	*All aircraft:* Use of O2 required by flightcrew when between 12,500-14,000 MSL cabin pressure altitude (for more than 30 minutes duration) [91.211(a)(1)]. *All aircraft:* Use of O2 required at all times above 14,000 MSL cabin pressure altitude [91.211(a)(2)] *Pressurized aircraft:* • Above FL (flight level) 350 for at least one pilot who is at the controls must use an O2 mask. *Exception:* if two pilots are at the controls at or below FL 410, a quick donning O2 mask must be available to each pilot and able to be placed on the face within 5 seconds [91.211 (b)(1)]. • At altitudes above FL 350, if one pilot leaves duty station, the remaining pilot must use O2 mask [91.211 (b)(2)].	*Unpressurized aircraft:* • When between 10,000-12,000 MSL (for more than 30 minutes duration)[135.89(a)(1)]. • At all times above 12,000 MSL [135.89(a)(2)]. *Pressurized aircraft:* • More than 10,000 MSL cabin pressure altitude [135.89(b)(1)]. • At 25,000-35,000 MSL, unless each pilot is equipped with an approved quick donning type O2 mask, at least one pilot at controls must wear O2 mask and other pilot has O2 mask immediately available (mask must supply O2 at all times or must be one that automatically supplies O2 when cabin pressure exceeds 12,000 MSL) [135.89(b)(2)]. • At flight altitudes above 35,000 MSL at least one pilot at controls must wear and use an O2 mask regardless of type of O2 mask used [135.89(b)(3)]. • At altitudes above 25,000 MSL, if one pilot leaves duty station, the other pilot must wear O2 mask [135.89(b)(4)].
Required O2 capacity and equipment (flightcrew only)	*All aircraft:* Enough supplemental O2 required for flightcrew for flight duration of more than 30 minutes between cabin pressure altitudes 12,500 - 14,000 MSL and for the duration of flight above a cabin pressure altitude of 14,000 MSL [91.211(a)(1) and (2)].	*Unpressurized aircraft:* Enough O2 dispensers and O2 to supply the pilots under 135.89(a) above. *Pressurized aircraft:* Unless equipped with enough O2 and O2 dispensers per 135.157(a), comply with 135.89(a), or a have a 2 hour supply of O2 (whichever is greater), for each pilot if cabin pressure altitude exceeds 10,000 MSL and cabin pressure fails [135.157(b)(1)].
Required O2 Capacity (occupants)	*All aircraft:* Enough supplemental O2 for each occupant for the duration of flight above 15,000 MSL cabin pressure altitude [91.211 (a)(3)]. *Pressurized aircraft:* Above FL 250, at least 10 minutes of O2 for each occupant in addition to the amount of O2 required above in 91.211 (a).	*Unpressurized aircraft:* Enough O2 for each occupant other than the pilots for duration of flight. *Pressurized aircraft:* • Unless equipped with enough O2 and O2 dispensers per 135.157(a), at altitudes above 10,000-15,000 MSL, enough O2 for at least 10% of the occupants, other than pilots, for that part of flight greater than 30 minutes [135.157(b)(2)(i)]. • Above 15,000 MSL enough O2 for each occupant, other than pilots, for one hour unless, aircraft can safely descend to 15,000 MSL within 4 minutes, in which only a 30 minute supply is required [135.157(b)(2)(ii)].

*Copies of FAA Bulletins, Advisory Circular (AC) Checklist, notices of rule changes, and other Flight Standards information, can be downloaded from the Internet world wide web at **www.faa.gov/avr/afshome.htm**. You may also contact your local FSDO for a copy of a particular bulletin. AC's may be ordered from, the Superintendent of Documents, PO Box 371954, Pittsburgh, PA 15250-7954 (phone orders: 202 512-1800;fax: 202 512-2250). Master Minimum Equipment Lists (MMEL) may be downloaded from the internet at **www.opspecs.com** or you can request the specific MMEL from your local FSDO.*

Clarification of Repairmen Certificate Eligibility

Because of the continued confusion regarding the eligibility of repairmen certificates issued under FAR Section 65.101, specifically Section 65.101 (a)(2), the FAA has provided guidance that will hopefully help clarify the certificate requirements for persons deemed "directly in charge" of the maintenance functions of a repair station.

The guidance, which is contained in bulletin HBAT 00-09a, states that, although the phrase "directly in charge" is only contained in Parts 121 and 135, and not in Part 145, the FAA has recently issued a Notice of Proposed Rulemaking (NPRM) to amend Part 145 to include such a definition. The proposal is consistent with the "directly in charge" definition provided for air carriers in Sections 121.378 and 135.435. In addition, the bulletin points to a 1994 FAA legal interpretation of section 121.378 that states in part: "the responsibilities of a person directly in charge are not limited to the performance of physical maintenance, preventive maintenance or alterations." The FAA also stated that, "with respect to the organizational structure of a certificate holder, persons directly in charge include any supervisory personnel who, on airworthiness or maintenance matters, are responsible for issuing decisions or instructions concerning the performance of maintenance functions affecting aircraft airworthiness." Persons "directly in charge" may include multiple levels of management in the organizational chain of command, depending on the circumstances of the case.

"...applicants [who are 'directly in charge']...must possess a working knowledge of the overall job function..."

Thus, according to the bulletin, a repair station may submit applicants for a repairmen certificate as supervisory personnel under Section 65.101, if they are found to be technically qualified, and designated "directly in charge" of specific business units, or work cells. The applicants need not be able to physically perform all functions of the specific business unit or work cell, but must possess a working knowledge of the overall job function for the repairman rating(s) sought. They must also be able to make decisions and provide instructions concerning the performance of maintenance functions affecting aircraft or component airworthiness.

For further details, please refer to the above bulletin or contact your assigned principal maintenance or avionics inspector (PMI/PAI).

Titeflex Flexible Hose Alert

Based on an advisory from Boeing Corporation in Seattle, WA, the FAA's Seattle Aircraft Certification Office is alerting users of Titeflex hoses, manufactured by Titeflex Corporation of Springfield, MA, that the hoses may not meet SAE specification AS1055. This specification prescribes fire test procedures for flexible hoses that carry fuel, oil, and hydraulic fluid. In recent fire tests performed by Titeflex, the hoses failed at the location where the hose attaches to the metal end fitting one to two minutes into the 15 minute burn test. During the test the fire sleeve pulls back from the clamp at the connector, exposing the hose to the flame. Hoses produced since early 1996 are suspect. The FAA will soon mandate replacement of deficient Titeflex hoses within APU compartments, engine nacelles, and struts with hoses that meet Part 25 fire protection requirements through an Airworthiness Directive (AD).

Restricted International Areas

The FAA has reclassified the phrase "sensitive" international areas to

"restricted" international areas and has revised the procedures for Part 121 and 135 air carriers to request operations into or over these areas. This change in procedure will hopefully lead to a more efficient handling of these requests. Sensitive or restricted areas, which are approved through paragraph B50 of the air carrier's operations specifications, are designated as such due to commercial trade restrictions; no-fly zones; flight prohibitions specified in Special Federal Aviation Regulations (SFAR); restriction of certain transactions related to aircraft services; and various security reasons. The current list of restrictions and information about the request process along with agencies to contact are now contained on the Internet at *www.faa.gov/avr/afshome.htm* under the subject title of Restricted International Areas. The site is designed so you can just click on the name of the country to link directly to the section of the FAA's International Flight Information Manual for that country. In addition, clicking on the regulation or restriction will link you to the full text of the restriction as provided by the U.S. Government agency that imposed the restriction, as well as direct links to each agency's website. For further information, please refer to FAA bulletin HBAT 00-10 or contact your assigned POI.

FAA Clarifies Dual Brake Requirement

Based on FAA's long standing interpretation that brakes are not required controls under FAR section 91.109(a), and upon determining that safety has not been impacted negatively, the FAA's Office of General Counsel clarified its position that the term "dual controls" as used under FAR section 91.109(a) refers solely to the flight controls of an aircraft (e.g., pitch, yaw, and roll controls).

This means that civil aircraft with a single set of brakes, with or without a central handbrake, may continue to be used for flight instruction or practical tests. For a more detailed discussion on this issue, please refer to bulletin HBGA 00-08.

FAA Reminds Operators of Transponder and Mode C Requirements

FAR section 91.215(b)(2) requires that all aircraft operating below 10,000 feet within 30 nautical miles of an airport listed in part 91, appendix D, section 1, be equipped with a transponder and Mode C altitude reporting capability. An exception was made in section 91.215(b)(5) for aircraft not originally certificated with an engine-driven electrical system installed, as well as for all balloons and gliders.

Originally, a Special Federal Aviation Regulation (SFAR) 62 suspended the requirements of FAR section 91.215(b)(2) with respect to certain operations within the vicinity of approximately 300 specified airports in the outlying areas of certain Mode C veils. SFAR 62 provided access to these airports for aircraft without Mode C transponders until December 30, 1993. In August 1994 the FAA initiated, but did not finalize, an Air Traffic rule making notice to reinstate the SFAR. In 1998, Air Traffic initiated action to withdraw the rulemaking notice. However, from 1994 to the present, the FAA and industry operated as if the SFAR 62 provisions were still in effect. Because the FAA determined that ample time had been provided to comply with this equipment requirement, the FAA withdrew the 1994 Air Traffic rulemaking notice in January, 2000.

Therefore, pilots who are unable to equip their aircraft with an altitude encoding transponder, because of aircraft electrical system limitations, should contact the local ATC facility to obtain a clearance or request a written waiver (renewable annually) in order to transition into and out of the Mode C veil airspace for airports specified in Part 91, Appendix D (see bulletin HBGA 00-07 for additional information).

Newsbriefs continued on next page

Halatron I Not Yet Approved For Part 121/135

by Bill Dekine, Aviation Safety Inspector, NE-FSDO-03

During an audit of a FAR Part 135 operator, an inspector found that a Halatron I fire extinguisher was installed in the aircraft. After inspecting the brochure, you could be led to believe that Halatron I is approved for installation in your aircraft because it states that it is U.L. Listed, FAA, and EPA Approved.

Halatron I *has not* been approved by the Aircraft Certification Office, the FAA William J. Hughes Technical Center, or by the Underwriter Lavatories for use or installation inside any aircraft. The extinguishers have not passed the Underwriters Laboratories hidden fire test and will only extinguish seven to eight cups per test. The minimum cup requirement of nine cups per test is required. Halatron I is approved for airport and runway use at this time.

If you have, or are thinking about installing these bottles as a replacement for Halon 1211, please be advised that Halatron is not an approved replacement as of yet. For further information you can contact Buckeye Fire Equipment Co. at 704-739-7415.

Advanced Surveillance Being Tested

Advanced surveillance capabilities for controllers and pilots using Automatic Dependent Surveillance-Broadcast (ADS-B) avionics systems are being developed and tested by the FAA. ADS-B will be used to transmit aircraft position information via data link to any location that has a receiver capable of receiving the ADS-B signal. Under the FAA's SafeFlight 21 program, ADS-B and some of its applications are undergoing a series of FAA and industry operational tests and evaluations to determine if the accuracy, integrity, and reliability of the ADS-B signal is equal to or better than existing surveillance systems, such as radar.

Some ADS-B avionics systems may not require any actions from the pilot other than turning the system on or off and verifying that the system is transmitting or receiving a signal. Other systems may provide surveillance information to the pilot through various cockpit displays. These displays may replicate aircraft traffic information normally provided to air traffic controllers and allow pilots to maneuver the aircraft and provide for their own separation independent of air traffic controller inputs. In addition to normal pilot tasks, pilots may now be tasked with additional workload that normally is the responsibility of air traffic controllers.

One of the initial applications being evaluated is the use of the ADS-B signal by air traffic controllers to track and provide RADAR-like separation standards to ADS-B equipped aircraft operating in a non-RADAR environment. Other operational applications of ADS-B are: flightcrew use of an ADS-B cockpit display of traffic information for final approach spacing, situational awareness, and enhanced see and avoid.

When tests and evaluations of future ADS-B applications are conducted by air carriers during revenue carrying operations and as incremental applications of ADS-B are approved for operational use, FAA principal inspectors will ensure that the highest level of safety is maintained using guidance contained in bulletin HBAT 00-06. This guidance will assist the principal inspectors in determining whether certain operations specifications for operational authorization are required.

For further information, please refer to the above bulletin and contact your assigned principal inspectors. ✈

Click here to log onto the FAA's Suspected Unapproved Parts (SUP) website.

Suspect JT3D and JT8D Compressor Disks

The FAA released an Unapproved Parts Notification (UPN) concerning certain high pressure compressor disks installed on Pratt & Whitney JT3D and JT8D turbine engines. A records review conducted by the FAA at several FAA certified repair stations identified 179 of the above compressor disks which did not receive appropriate inspections prior to being returned to service. Specifically, two improper overhaul conditions have been identified that resulted in an unsafe condition:

- Failure to perform a corrosion inspection after stripping a HP compressor disk, prior to shotpeening and replating, which is contrary to Pratt & Whitney's Standard Practices Manual and the JT8D and JT3D engine manuals.
- Failure to perform a fluorescent magnetic particle inspection on HP compressor disks after stripping and prior to shotpeening and replating, contrary to the P & W engine manuals.

At the request of the FAA, the notice states that several repair stations have notified operators of the above discrepancies. However, it is recommended that all owners, operators, and part suppliers and brokers, should review their inventories for any of the disks listed in the notice. A copy of this UPN, and others, may be obtained from your local FSDO or by downloading UPN No. 99-139 from *www.faa.gov/avr/sups.htm*.